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Three New Species of *Unguidispus* (Acari, Heterostigmata, Microdispidae) from Japan*

With 8 Text-figures

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ABSTRACT Three new species of microdispid mites belonging to the genus *Unguidispus* are described from Japan under the names of *U. japonicus, U. lasii* and *U. okumurai.* They are found in the nests of ants of the genus *Lasius*, and are distinguished from the two known congeners mainly by the shape of sensillus, by the relative length and conformation of hysterosomal dorsal setae, and also by the distance from epimeric seta *3c* to coxal foramen III. The male and immature stages are unknown.

The genus *Unguidispus* was erected by Mahunka (1970 a) to accomodate an unusual microdispid mite found in ant nests in Hungary. In the same paper, Mahunka alluded to the systematic position of *Pinophilus polyctenus* Sevastianov, 1969, described from nests of *Formica* spp. in U.S.S.R., and treated it as a member of *Xystrorostrum* Mahunka, 1968. In the same year, he (1970 b) transferred *polyctenus* to his genus *Unguidispus* and reported its occurrence in Austria. Since then, no paper dealing with this genus and its representatives has been published.

In the course of my study on mites associated with Japanese ants, I found three species apparently belonging to this genus. They are all new to science and will be described in the present paper. The holotypes of the new species are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo. The paratypes are now retained in my collection, but some of them will be distributed later to foreign museums.

Terminology used herein follows mainly that of van der Hammen (1970) except for the following: 1) dorsal setae of hysterosoma are designated according to the system of Lindquist (1977), and 2) leg setae (excluding solenidia) are named after Krczal (1959).

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Unguidispus japonicus sp. nov.

(Figs. 1–2)

Female. Length of body (length of idiosoma), 129–146 μ; width of body, 91–98 μ; distance between anterior coxal condyles of leg III, 64–68 μ.

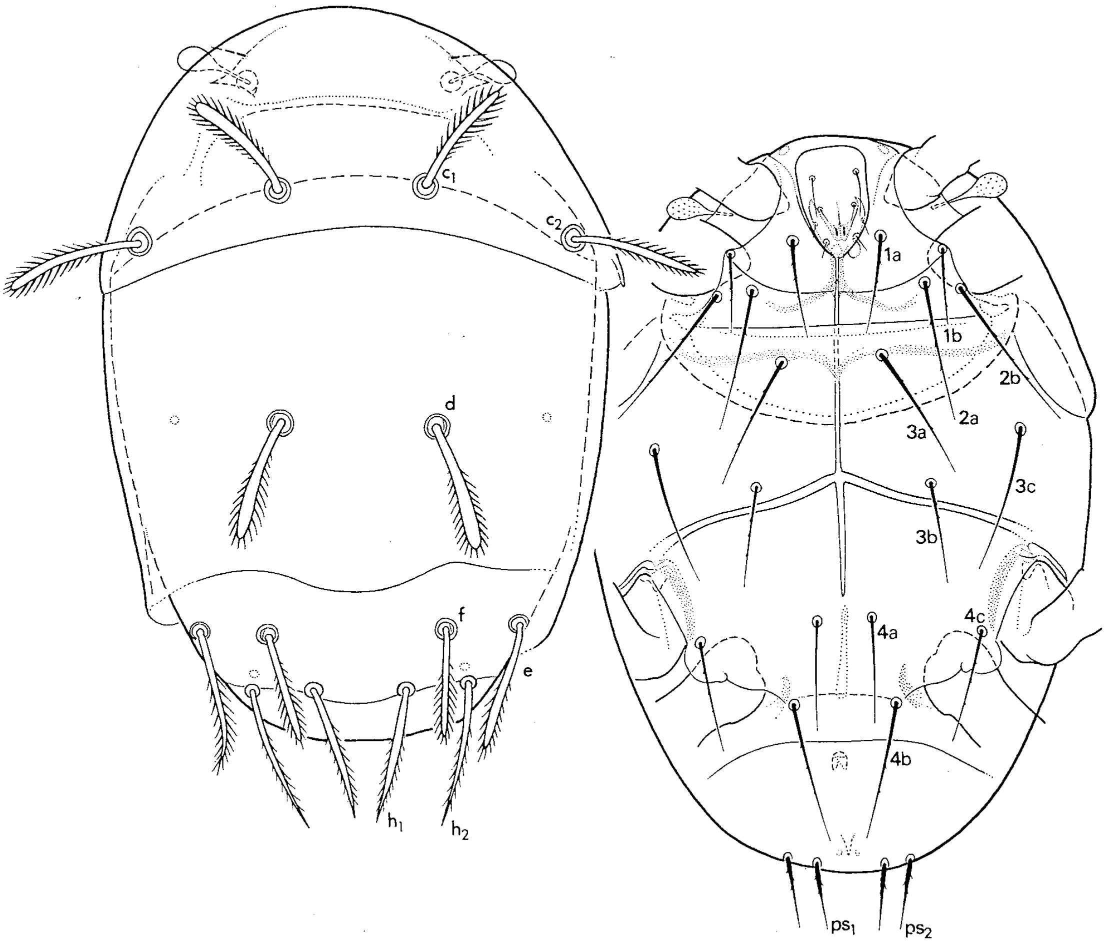


Fig. 1. *Unguidispus japonicus* sp. nov., female; dorsum (left) and venter (right).

Dorsum. Prodorsum wholly covered by first tergite of hysterosoma. Sensillus somewhat variable in shape, but always distinctly capitate, usually rounded at apex, never sharply pointed. Posterior margin of second tergite of hysterosoma rounded medially. Dorsal setae of hysterosoma not much different in length and, except for h_1 and h_2, distinctly widened distad and strongly barbed, nearly spatula- or plume-shaped (though not always seen as such in dorsoventral view of mounted specimens); c_2 usually a little longer than c_1; mutual distance c_1–c_1 subequal to d–d; f usually slightly shorter than d or e; h_1 and h_2 hardly or not shorter than setae of preceding tergites, rather thick, with strong barbs. Length of dorsal setae (including barbs) on hysterosoma of holotype (in μ): c_1 21.4, c_2 25.6, *d* 24.0, *e* 26.8, *f* 20.4, h_1 24.7, h_2 28.4.

Venter. Apodeme 2 distinct though fine, weakly and evenly arcuate, nearly horizontal and somewhat obscured medially. Secondary transverse apodeme lacking. A pair of procurved weak thickenings present on either side of anterior sternal apodeme between setae *2a*. Apodeme 4 reclinate, straight or weakly arcuate, nearly reaching anterior part of marginal thickening of coxal foramina III. Epimeric setae fine, with very weak barbs (discernible only under high magnification); *1a* not reaching sejugal apodeme; *3b* closely anterior to apodeme 4; *3c* well anterior to *3b* (distance between centre of insertion pore for *3c* and anteriormost part of coxal foramen III is ca. 21–24 μ); *4a* slightly anterior to *4c*; mutual distance *4b–4b* much smaller than *3b–3b*. Caudal setae ps_1 and ps_2 subequal in length, moderately thick; mutual ditance ps_1–ps_1 much larger than distance ps_1–ps_2.

Legs. Leg I (Fig. 2) much shorter and distinctly thinner than legs II and III; dorsomesal seta *h* of genu stout, with strong barbs; tibiotarsus elongate, with a moderate-sized pedicellate claw and a well-developed pinnaculum, which bears an apical, blunt-tipped seta and a subapical, curved, blunt-tipped seta; solenidion ω_1 (Sinneskolben 4 of Krczal) and φ_2 (Sinneskolben 1 of Krczal) fairly long; φ_2 distinctly thinner than ω_1, usually curved; φ_1 shorter than φ_2 or ω_1, clavate; ω_2 minute, barely visible. Legs II and III: seta *c* of femur rather thick, with strong barbs. Leg IV: anterodistal corner of trochanter excised, terminating in a sharp point; seta *c* of femur stout, somewhat widened distad and strongly barbed, nearly plume-shaped, resembling dorsal setae of hysterosoma; seta *l* of tibia stout, the apex usually extending slightly beyond claws.

Male and immature stages. Unknown.

Type-series. Holotype (NSMT–Ac 9283): ♀, Iwai-shi, Ibaraki Pref., Japan, ex nest of *Lasius* (*Lasius*) *niger* Linné in rotten log, 22–XI–1970, K. Kurosa leg. Paratypes: 4 ♀♀, same data as the holotype; 1 ♀, Tajima-ga-hara by the Riv. Arakawa, Urawa-shi, Saitama Pref., Japan, ex nest of *Lasius* (*Lasius*) *niger* Linné in soil, 7–III–1971, K. Kurosa leg.

Remarks. The present new species closely resembles *Unguidispus stammeri*, the type-species of the genus. According to the original description and figures given by Mahunka (1970 a), however, *U. stammeri* differs from *U. japonicus* in the following characteristics: 1) sensillus lanceolate with sharply pointed apex; 2) setae h_1 and h_2 plume-shaped like other dorsal setae of hysterosoma; 3) seta *3c* a little more distant from coxal foramen III; 4) seta *4a* well anterior to *4c*; 5) mutual distance *4b–4b* only a little smaller than *3b–3b*; 6) seta *l* of tibia IV extending well beyond the claws. Moreover, the plume-shaped setae of hysterosoma seem to be much more densely barbed in *U. stammeri.*

The five Iwai specimens designated as the holo- and paratypes of the new species were collected from the same nest of *Lasius niger* together with many individuals of *Unguidispus lasii* sp. nov.

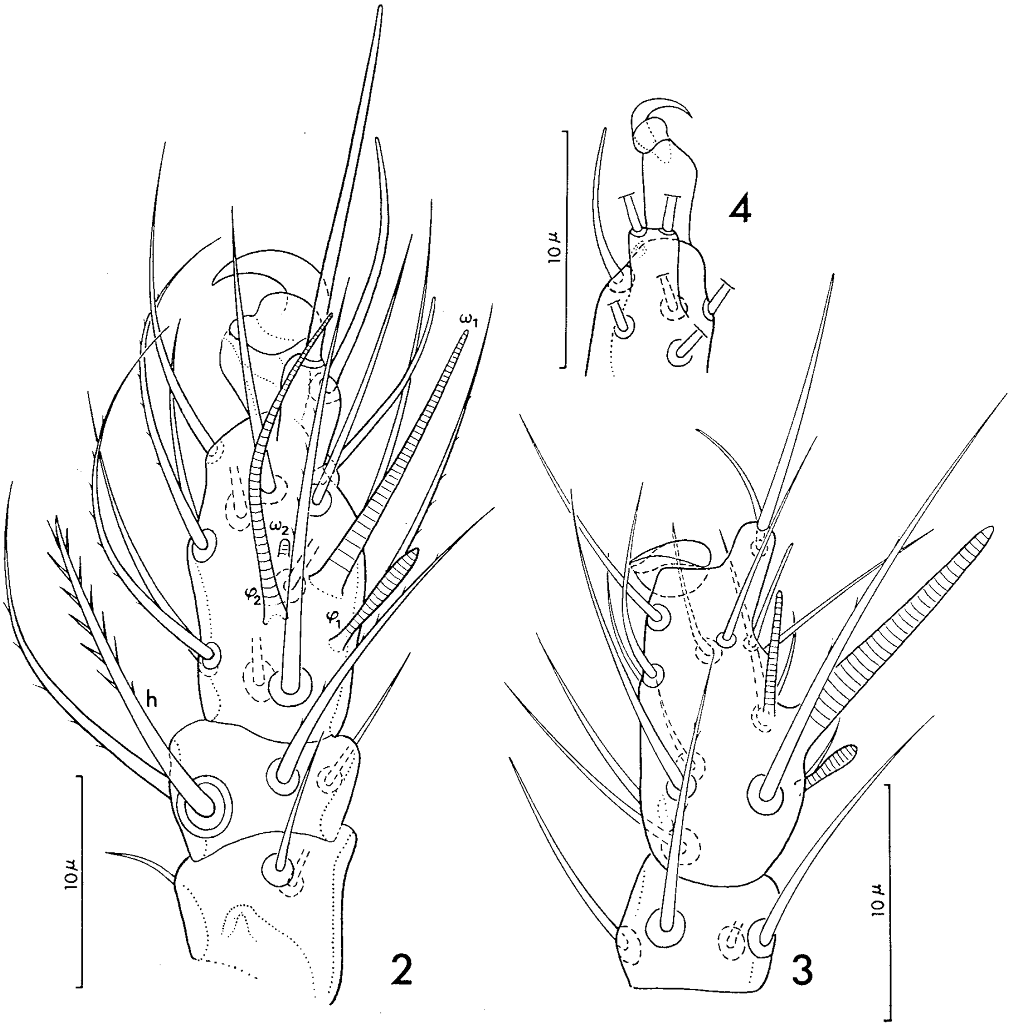


Fig. 2. Right leg I of *Unguidispus japonicus* sp. nov., female; dorsal view. —— Figs. 3–4. Leg I of *Unguidispus okumurai* sp. nov., female. —— 3. Genu and tibiotarsus of right leg I, obliquely dorso-proximal view. —— 4. Distal portion of tibiotarsus and claw of left leg I, dorsal view.

Unguidispus lasii sp. nov.

(Figs. 5–6)

Female. Length of body (length of idiosoma), 120–146 μ; width of body, 78–101 μ; distance between anterior coxal condyles of legs III, 54–67 μ.

Closely allied to *U. japonicus* sp. nov. and answering the description of the latter excepting the features given below.

Dorsum. Sensillus usually distinctly capitate, with apex evenly rounded or bluntly pointed; in some examples, head of sensillus fairly elongated, but its apex is not so sharply pointed as in *U. stammeri.* Dorsal setae of hysterosoma: c_1, d and f subequal in length; e, h_1 and h_2 a little shorter than those setae; c_2 usually slightly

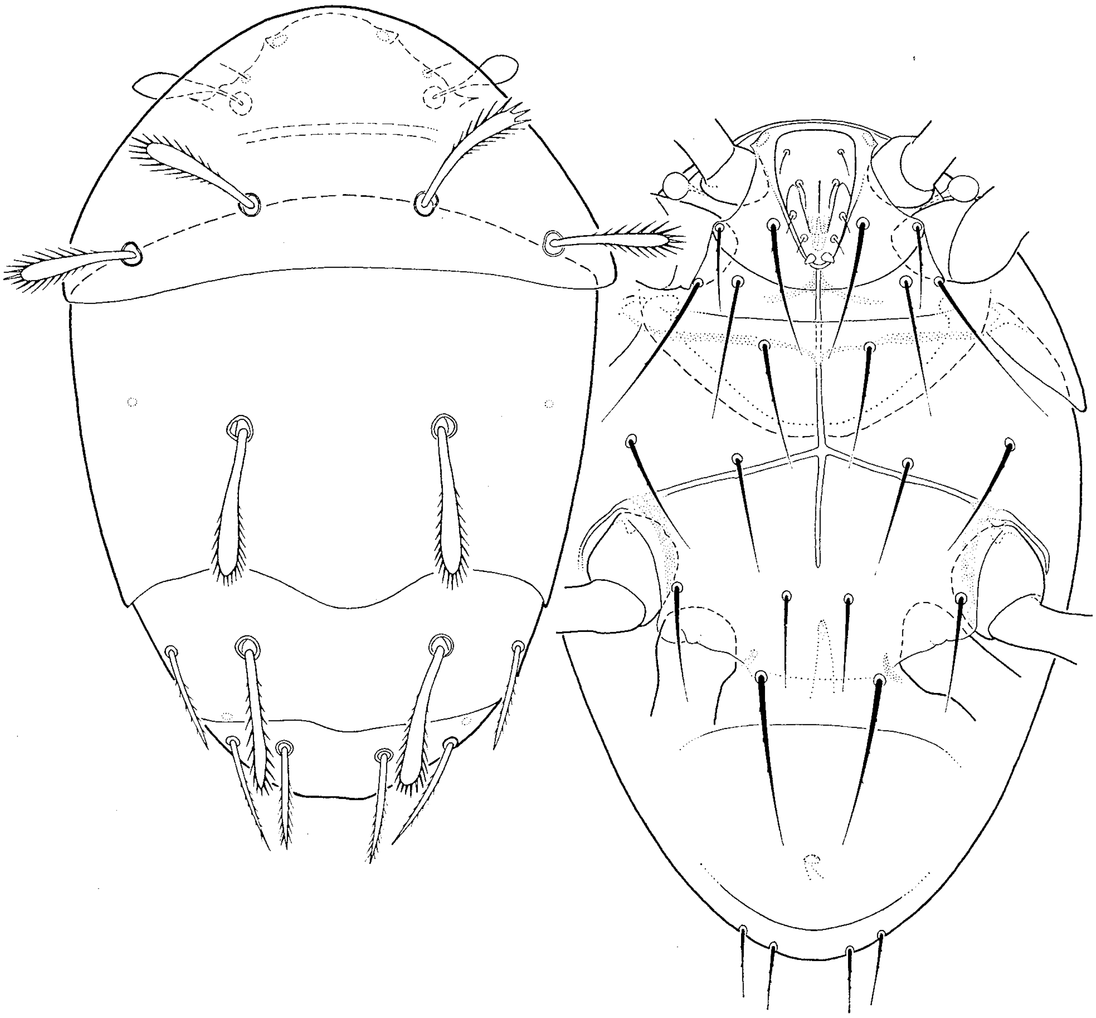


Fig. 5. *Unguidispus lasii* sp. nov., female; dorsum (left) and venter (right).

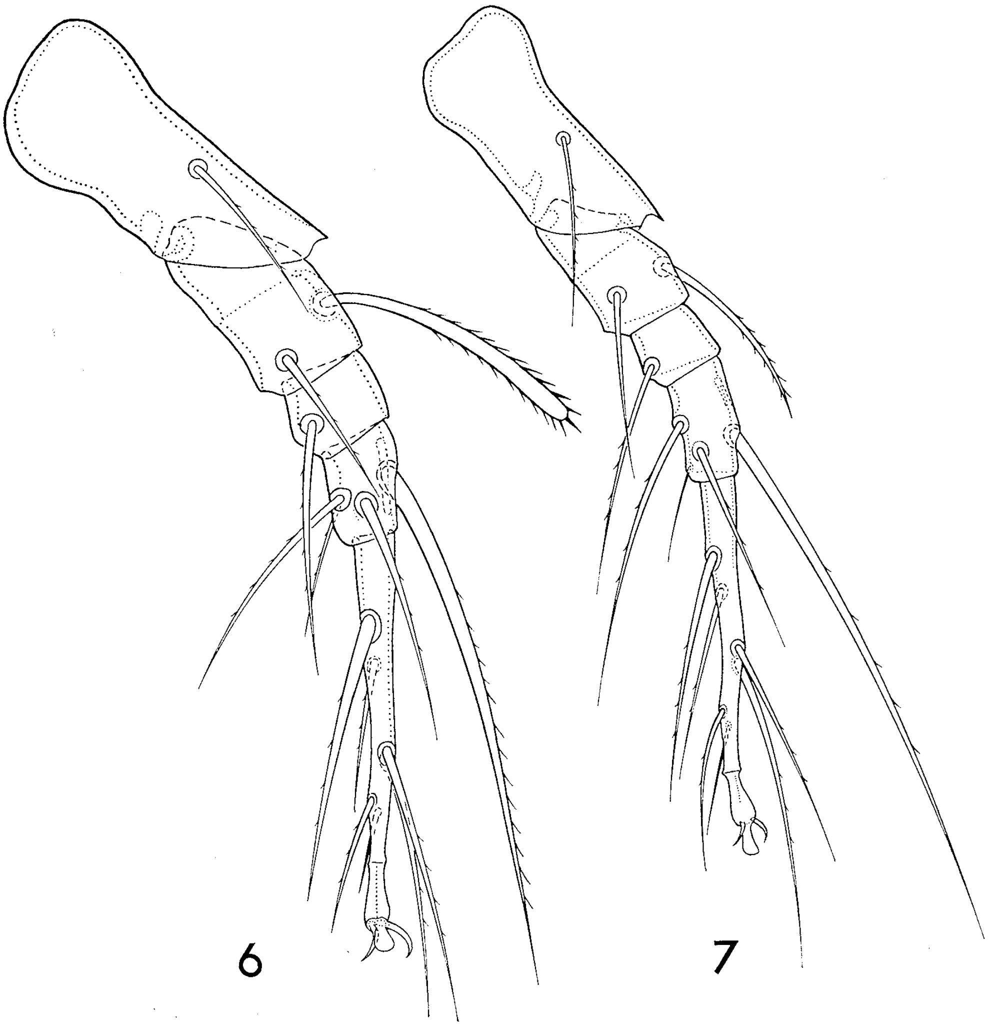
shorter than c_1; f never shorter than e; c_1, c_2, d and f distinctly widened distad and strongly barbed, nearly spatula- or plume-shaped (though not always seen as such in dorsoventral view of mounted specimens); e, h_1 and h_2 rather thick, with strong barbs. Length of dorsal setae (including barbs) on hysterosoma of holotype (in μ): c_1 24.2, c_2 22.2, d 25.7, e 18.2, f 24.5, h_1 16.8, h_2 20.7.

Venter. Apodeme 4 nearly reaching anteromesal corner of marginal thickening of coxal foramina III. Epimeric seta *3b* usually closely anterior to apodeme 4 (in some specimens, insertion pore for *3b* is contiguous to the apodeme); *3c* a little anterior to *3b* (distance between centre of insertion pore for *3c* and anteriormost part of coxal foramen III is ca. 8–14 μ); *4a* usually slightly posterior to *4c*.

Legs. Solenidion ω_2 of tibiotarsus I small, but it seems to be a little longer than that of *U. japonicus*.

Male and immature stages. Unknown.

Type-series. Holotype (NSMT–Ac 9284): ♀, Iwai-shi, Ibaraki Pref., Japan, ex



Figs. 6–7. Left leg IV of *Unguidispus* spp., female; ventral view. —— 6. *U. lasii* sp. nov. —— 7. *U. okumurai* sp. nov.

nest of *Lasius* (*Lasius*) *niger* Linné in rotten log, 22–XI–1970, K. Kurosa leg. Paratypes: 12 ♀♀, same data as the holotype; 2 ♀♀, Torami, Ichinomiya-machi, Chôsei-gun, Chiba Pref., Japan, ex nest of *Lasius* (*Lasius*) *niger* Linné in soil, 10–VI–1970, K. Kurosa leg.; 40 ♀♀, Mt. Mitake, Kamiagata-chô, Tsushima Islands, Nagasaki Pref., Japan, ex nest of *Lasius* (*Lasius*) *hayashi* Yamauchi et Hayashida in rotten wood, 10–I–1969, T. Okumura leg.

Remarks. The present new species is very closely related to *U. japonicus* sp. nov., but may be distinguished from the latter by the relative length of hysterosomal dorsal setae, and by the distance between epimeric seta *3c* and coxal foramen of leg III.

Unguidispus okumurai sp. nov.

(Figs. 3–4, 7–8)

Female. Length of body (length of idiosoma), 115–137 μ; width of body, 78–87 μ; distance between anterior coxal condyles of legs III, 54 μ.

Well according with the description of *Unguidispus japonicus* sp. nov. excepting the characters given below.

Dorsum. Sensillus distinctly capitate, with evenly rounded apex. Dorsal setae of hysterosoma simple, very weakly barbed or almost nude, not spatulate nor plume-shaped, c_1, c_2, d and f rather short; e, h_1 and h_2 longer than those setae, subequal in length to each other; mutual distance c_1–c_1 larger than d–d.

Venter. Apodeme 4 nearly horizontal and weakly procurved in the holotype,

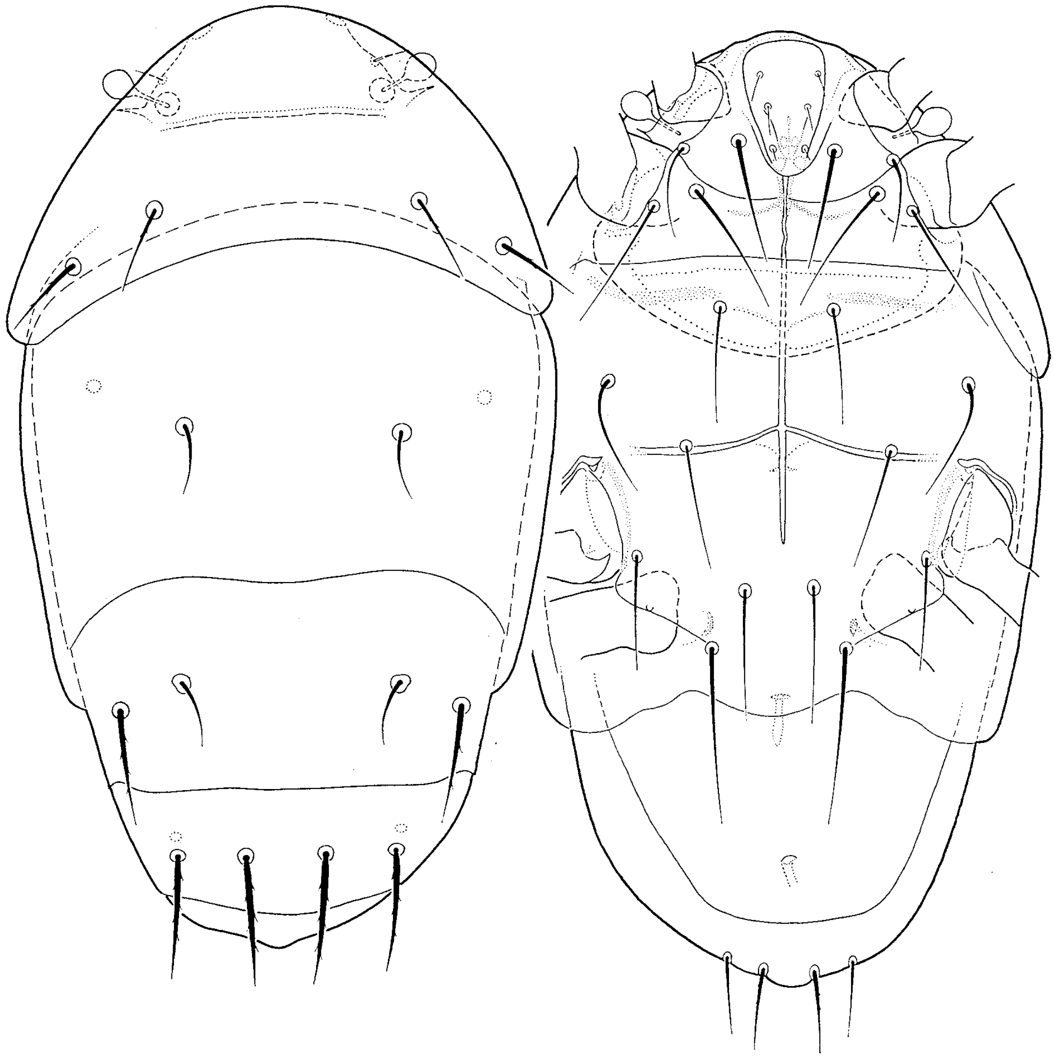


Fig. 8. *Unguidispus okumurai* sp. nov., female; dorsum (left) and venter (right).

somewhat reclinate and almost straight in the paratype, terminating laterally near anteromesal corner of coxal foramina III. Epimeric seta: insertion pore for *3b* located on, or contiguous to apodeme 4; *3c* much anterior to *3b* (distance between centre of insertion pore for *3c* and anteriormost part of coxal foramen III is 8.4–8.9 μ); *4a* a little posterior to *4c*. Mutual distance ps_1–ps_1 slightly larger than distance between ps_1–ps_2.

Legs. Leg I (Figs. 3–4): seta *h* of genu normal in shape; claw rather small; solenidion ω_1 of tibiotarsus fairly long; φ_2 much shorter than ω_1; φ_1 clavate; ω_2 not seen (probably due to the poor state of mounting). Legs II and III: seta *c* of femur normal in shape. Leg IV (Fig. 8): seta *c* of femur relatively thick, with some distinct barbs; *l* of tibia not thickened, the apex extending well beyond claws.

Male and immature stages. Unknown.

Type-series. Holotype (NSMT–Ac 9285): ♀, Mt. Mitake, Kamiagata-chô, Tsushima Islands, Nagasaki Pref., Japan, ex nest of *Lasius* (*Lasius*) *hayashi* Yamauchi et Hayashida in rotten wood, 25–XII–1970, T. Okumura leg. Paratype: ♀, same data as the holotype.

Remarks. The present new species resembles *Unguidispus polyctenus* (Sevastianov, 1969) in having simple setae on the hysterosomal dorsum, but is readily distinguished from the latter by the following features: 1) sensillus distinctly capitate, with rounded apex, 2) dorsal setae c_1, c_2, *d* and *f* of hysterosoma much shorter, and 3) caudal setae ps_1 and ps_2 subequal in length.

The type-series of the new species was collected from the same nest of *Lasius hayashi* together with many individuals of *Unguidispus lasii* sp. nov.

This interesting mite is named in honour of Mr. T. Okumura, the collector of the type-series.

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